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LIQUID CRYSTAL DISPLAY ELEMENT

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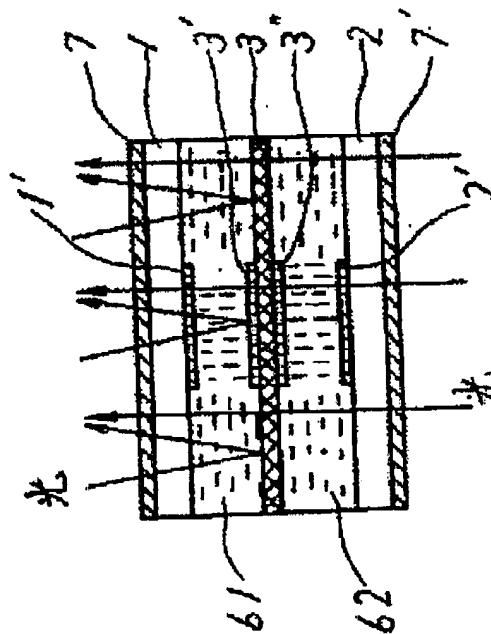
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Abstract of JP59017530

PURPOSE: To enable displayings which are substantially equal as a whole and are good in both of reflection type and transmission type, by changing the density in both colors of the liquid crystal layer groups on both sides of a translucent plate by changing the density and thickness of the respective liquid crystal layers.

CONSTITUTION: A liquid crystal element is disposed with a milky glass plate 3 of 0.5mm. thickness as a translucent plate 3 having both reflectivity transmittance provided with transparent electrodes 3', 3" at the intermediate of glass substrates 1, 2 having transparent electrodes 1', 2' on the liquid crystal sides. Nematic liquid crystals 61, 62 having positive dielectric anisotropy dissolved with a black dichromatic dye of the same density are held between the respective substrates to about 10 μ m so as to be oriented in parallel. Polarization plates 7, 7' are held oppositely in contact with the outside surfaces of the substrates 1, 2 whereby the liquid crystal display element is constituted. A light source for illumination is put behind the element so that the element acts as a reflection type. The element acts as a transmission type in the daytime when external light is strong. When the element is observed in the nighttime where there is no external light or in a room or in a twilight state, the density and contrast of the displayed color do not change and there is no deviation nor out of focus of the display in either case.



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FIG. 4

